

CLAIMS:

1. An apparatus for immunological labeling of thin tissue sections, comprising:
 - a carrier plate on which the thin tissue sections are affixed in a defined pattern;
 - at least one slide on which a treatment liquid is applied in the form of droplets, wherein the arrangement of the droplets on the slide corresponds to the arrangement of the thin tissue sections on the carrier plate;
 - a transport container for holding one slide; wherein the transport container has a peripheral delimiting wall attached to a base; and,
 - a first and a second station, in which the transport containers are stacked, wherein the base of one transport container constitutes the cover of a transport container arranged beneath it.
2. The apparatus as defined in Claim 1, wherein the transport containers that each carry a slide are stacked in the first station and a plurality of fresh, unused droplets are arranged on the slides.
3. The apparatus as defined in Claim 2, wherein the transport containers that each carry a slide are stacked in the second station and a plurality of droplets, already used during a by a treatment step are arranged on the slides.
4. The apparatus as defined in Claim 1, wherein in the first station and in the second station, the topmost transport container in each case is not equipped with a slide; and the base of that

transport container exclusively constitutes the cover for the following transport container in the first and second station.

5. The apparatus as defined in Claim 1, wherein the apparatus is structured in an input section, a supply section, and a treatment section; and a transport mechanism travels back and forth between the supply section and the treatment section in order to transport at least one transport container from the supply section to the treatment section or from the treatment section to the supply section.

6. The apparatus as defined in Claim 5, wherein in the treatment section, the transport mechanism lifts the transport container in such a way that the liquid droplets present on the slide wet the tissue sections provided on the one lower side of the carrier plate.

7. The apparatus as defined in Claim 6, wherein each tissue sections on the lower side of the carrier plate rest on a metal grid that is held in position by a magnets provided in the carrier plate.

8. The apparatus as defined in Claim 5, wherein the treatment section comprises an arm in which a holder for the carrier plate is retained.

9. The apparatus as defined in Claim 8, wherein the holder possesses two grip recesses that serve for introduction and removal of the holder into and from the arm of the treatment section.

10. The apparatus as defined in Claim 5, wherein the input section encompasses a user interface with multiple input buttons and a display.

11. The apparatus as defined in Claim 5, wherein the station section is accessible from outside via a first and a second door, the first station with transport containers being arranged behind the first door, and the second station with transport containers being arranged behind the second door.

12. The apparatus as defined in Claim 5, wherein the treatment section has a pivotable cover beneath which a staining unit is located in which a carrier plate is retained.

13. The apparatus as defined in Claim 1, wherein the first and second station are constituted by a first, second, and third bar that are parallel to one another; the first and second bar are the endpoints of the base of an isosceles triangle; the third bar is the vertex of the isosceles triangle; the first, second, and third bar serve as guides for the transport containers; and the bars are secured at their upper ends in a common plate.

14. A method for immunological labeling for thin tissue sections, comprising the steps of:

a) creating an individual treatment process for the thin tissue sections, which are arranged on a carrier plate that is inserted in a treatment section;

b) applying droplets onto a plurality of slides, each of which has multiple depressions for reception of the liquid droplets;

- c) placing the slides, together with a transport container provided for the slide, in a first station;
- d) transferring the transport container, together with the slide, from the first station to a treatment section by means of a transport mechanism;
- e) lifting the transport container, together with the slide, in such a way that the liquid droplets on the slide wet the thin tissue sections on the carrier plate;
- f) transferring the transport container together with the slide, at a time predetermined by the individual treatment process, to a second station that holds used slides; and
- g) performing steps d) through f) until all the slides provided in the first station for an individual treatment process have been removed.

15. The method as defined in Claim 14, wherein steps d) through f) are performed fully automatically.

16. The method as defined in Claim 14, wherein creation of the individual treatment process is accomplished via a user interface provided in the input section, by means of multiple input buttons.

17. The method as defined in Claim 14, wherein the transport containers, each having a slide, that are required in accordance with the treatment process are stacked in the first station, the slide required first being arranged the lowest in the first station.

18. The method as defined in Claim 14, wherein the carrier plate is inserted in the treatment section by means of a holder on an arm of the treatment section; and the holder possesses two grip recesses by means of which the holder is inserted into or removed from the arm of the treatment section.

19. The method as defined in Claim 14, wherein upon lifting of the transport container, the requisite distance between the carrier plate and the slide is measured by way of at least one sensor.

20. The method as defined in Claim 19, wherein the lifting of the transport container and the setting of the requisite distance by way of the at least one sensor are accomplished in such a way that in the treatment section, the droplets in the depressions on an upper side of the slide lie exactly opposite the thin tissue sections held by metal grids on the lower side of the carrier plate, and wet those sections.

21. The method as defined in Claim 14, wherein transfer of the transport container out of the first station is accomplished in such a way that the transport mechanism lifts the stack of transport containers present in the first station, a clamp holding the stack being opened; and the entire stack is lowered by the transport mechanism, the clamp being closed again at the next transport container.

22. The method as defined in Claim 14, wherein transfer of the transport container to the second station after a time predetermined by the individual treatment process is accomplished in

such a way that the transport container is lifted by the transport mechanism at the second station until the clamp is closed again at the now bottommost transport container in the stack and holds that container and thus the stack of transport containers.

23. The method as defined in Claim 14, wherein the liquid droplets are applied onto the slide using a multiple pipette.

24. The method as defined in Claim 14, wherein in the first station and in the second station, the topmost transport container in each case does not contain a slide; and the base of that transport container exclusively constitutes the cover for the following transport container in the first or second station.

25. The method as defined in Claim 14, wherein access to the station section from outside is made possible via a first and a second door, the first station with transport containers being arranged behind the first door, and the second station with transport containers being arranged behind the second door.

26. The method as defined in Claim 14, wherein the first and second station and are constituted by a first, second, and third bar that are parallel to one another; the first and second bar are the endpoints of the base of an isosceles triangle; the third bar is the vertex of the isosceles triangle; the first, second, and third bar serve as guides for the transport containers; and the bars are secured at their upper ends in a common plate.